EXPEDITIONARY DEPLOYABLE OXYGEN CONCENTRATION SYSTEM
120 LITERS PER MINUTE

MODEL E-DOCS-120

PART NUMBER 792641-001

PACIFIC CONSOLIDATED INDUSTRIES

3430 WEST CARRIAGE DRIVE

SANTA ANA CALIFORNIA 92704

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SAFETY INFRORMATION

PACIFIC CONSOLIDATED INDUSTRIES

Section 1: PCI Safety Literature

Safety Summary

The following are general safety precautions that are not
related to any specific procedure and therefore do not appear elsewhere in this technical manual. These are general safety precautions and instructions that people must understand and apply during many phases of operation and maintenance to ensure personal safety and health and the protection of Government property.

Throughout this manual you will see three types of notations, which contain special information:

NOTE: Provides additional information that may be helpful in performing a specific task.

CAUTION: Provides information about conditions, which require special attention and precautions to avoid equipment damage.

WARNING: Provides information about conditions, which require special attention and precautions to avoid serious or fatal injuries.

Be sure to read the information in the notes, cautions, and warnings carefully, and consult someone experienced in handling oxygen equipment about any issues that are unclear. Additional safety guidelines related to specific components of the DOCADS are described in the appropriate chapters.

KEEP AWAY FROM LIVE CIRCUITS

Operating personnel must observe all safety requirements
at all times. Do not replace components or make adjustments inside equipment with the electrical supply turned on. Under certain conditions, danger may exist even when the power control is in the off position due to charges retained by capacitors. To avoid injuries, always remove power, discharge, and ground a circuit before touching it. Adhere to all lock out/tag out requirements.

RESUSCITATION

Personnel working with or near dangerous voltage shall be trained in modern methods of resuscitation. Information and training sources may be obtained from the Director of Base Medical Services.

FINGER RINGS/JEWELRY

Finger rings have caused many serious injuries. Remove
rings, watches and other metallic objects, which may cause shock or burn hazards. Unless specifically allowed by shop safety procedures, remove finger rings during all maintenance activity.

Section 1: PCI Safety Literature continued:

COMPRESSED AIR

Use of compressed air can create an environment of propelled particles. Do not direct air streams towards self or other personnel. Air pressure shall be reduced to less than 30 PSIG and used with effective chip guarding and personal protective equipment. Follow applicable AFOSH
standards when using compressed air.

DANGEROUS PRESSURES

Care must be taken during operation to ensure that all fittings are proper and tight. All system components must be compatible with pressure applied. Personnel must be protected by a safety shield or located at a distance sufficient to prevent injury.

CLEANERS/CHEMICALS/PAINTS/

PRIMERS

Some cleaners, chemicals, paints, and primers have adverse effects on skin, eyes, and the respiratory tract. Observe manufacturer's Warning labels, Material Safety Data Sheets (MSDS) instructions for proper handling, storage, and disposal, and current safety directives. Use only in authorized areas. Consult the local Bioenvironmental Engineer and Base Safety Office for specific protection equipment and ventilation requirements. Follow applicable AFOSH standards.

WORKING WITH OXYGEN

Oxygen is a powerful oxidizing agent that can cause a fire or explosion. A Material Safety Data Sheet is available at Pacific Consolidated Industries.

Oxygen systems must be properly cleaned and inspected, in accordance with Compressed Gas Association pamphlet G-4.1; prior to use to insure that no combustible materials remain in the connecting piping and fittings. If you are not familiar with oxygen cleaning procedures contact the Compressed Gas Association or Pacific Consolidate Industries prior to putting oxygen into your piping and distribution system. The Compressed Gas Association's web site is www.cganet.com.

Observe strict cleanliness procedures when fabricating and connecting the oxygen piping.
Only operate the oxygen generator in a well-ventilated area.

Section 1: PCI Safety Literature continued:

GUIDELINES FOR HANDLING CYLINDERS

While the principal function of the DOCADS is to provide gaseous oxygen for medical use, conventional oxygen cylinders are still an integral part of the system for supplying backup oxygen and for mobile oxygen requirements (for example, on board ambulances, helicopters).

Oxygen cylinders are under extremely high pressure (as much as 2250 psi) and present a number of associated hazards as a result.

WARNING: The sudden release of this pressure, whether by puncture, dropping, or loss of a pressure can easily turn the cylinder into a missile hurtling across the ground and through the air. Take extreme care when filling cylinders and when handling charged cylinders.

WARNING: Do not drag or slide cylinders or lift them by the pressure cap; this may damage the cylinders and cause the sudden release of, cylinder pressure. Use a suitable hand truck, forklift, roll platform, or similar device to move cylinders.

WARNING: Do not drop cylinders or permit them to strike against each other or other surfaces; this may damage the cylinders and cause the sudden release of cylinder pressure. Firmly secure cylinders during moving and transport.

WARNING: Do not fill cylinders too rapidly (that is, by not having enough cylinders on a charging manifold); excessive heat may build up in the gas and result in a failure of the seals in the cylinder valves and possible ignition.

WARNING: Periodically check the surface temperature of the cylinders during charging operations using the magnetically mounted temperature indicators provided with the equipment. Allowing excessive heat to build up in the gas will result in a failure of the seals in the cylinder valves and possible ignition.

WARNING: Never shut off a line without verifying that a suitably rated relief valve or bleed off valve has been installed between the two shutoff valves. Failure to do so can result in a rupture of the line and possible ignition.

WARNING: Never charge cylinders with oxygen that are marked for other gases. Always check the cylinder markings and ensure that only cylinders marked for oxygen are charged with oxygen. Failure to do so can result in contamination of the patient oxygen supply.

Section 2: Air Products Safety Literature

2.1 General Safety

The equipment installed in the generator has been carefully selected to meet strict oxygen compatibility and velocity requirements. Inappropriate materials of construction increase the danger of ignition of pipelines and controls. Sizing is just as important to ensure all velocity restrictions for oxygen are met. Do not substitute components or equipment without written approval from APCI.

Since many materials will burn in oxygen, the best method in preventing fires is to eliminate sources of ignition. Avoid open flames, sparks, or sources of heat. Never weld on a pressurized oxygen line. Make sure signs are posted warning personnel that oxygen is in use.

2.2 Hazard Warnings

2.2.1 Oxygen Enriched Atmospheres

Oxygen greater than 25% can increase those materials which burn in air to burn violently and at times explosively.

Oxygen concentrations in excess of 25% significantly increase the hazard exposure to personnel and equipment. Those materials, which burn in air, will burn more violently and sometimes explosively in oxygen. Reducing the hazard requires meeting stringent guidelines for specifying equipment, materials of construction, and system cleanliness. Only those personnel familiar with the hazards of oxygen and safe practices for oxygen systems should be permitted to operate and maintain the system.

Substituting oxygen for compressed air is dangerous. . Oxygen used to clean off equipment or clothing could come in contact with a source of ignition (spark, flame, or other) and ignite. In some cases, the elevated oxygen levels could linger even after the source has been shut off. ***Do Not Substitute Oxygen for Compressed Air.***

Section 2: Air Products Safety Literature Continued.

2.2.2 Oxygen Deficient Atmospheres

Oxygen concentration less than 19% can cause loss of life.

The oxygen generator should not be installed in an enclosed area that has very little air circulation. If the generator is to be located indoors, additional ventilation must be considered. Oxygen concentration less than 19% can cause loss of life.

2.2.3 Pressurized Lines

Pressurized gas lines can damage equipment and injure personnel.

The generator contains pressures up to 10 PSIG. A leak or rupture in any of these lines can create a hazard for personnel. Exercise care when working on or around these pressurized lines. Ensure the pressures have been vented before breaking any connection. Wear a face shield or safety glasses when working on previously pressurized lines.

2.2.4 Electric Shock

Electric shock can cause personnel injury or death.

Electric shock will result from contact with an active electrical circuit. Do not attempt to work on the system without first turning the power off and tagging out the system per lock out tag out procedures. Use specified voltage and power requirements that are located inside the electrical control cabinet. The oxygen generator must be grounded at all times. **Obey local wiring codes and practices. (Only qualified personnel should work on the equipment.)**

Section 2: Air Products Safety Literature Continued.

1.2.5 Hearing Safety

Long-term exposure to excessive noise levels may cause permanent hearing loss.

An enclosure houses the oxygen generator rotating equipment. The enclosure's primary function is sound and air flow control, it should be kept closed when the generator is in operation. During maintenance or troubleshooting, when the generator must be run with the enclosure open, all personnel working on or near the generator should wear ear protection. Avoid locating generator in small buildings, which could amplify noise. Outside operation is preferred for the oxygen generator.

2.2.6 Hot Surfaces

Contact with hot surfaces can cause burns to the skin.

Certain areas of the generator can become hot to the touch. Some areas are the heat exchanger and interconnecting piping. The blower and silencer are another source of heat. Use caution when servicing the equipment.

2.2.7 Rotating Equipment

Certain parts rotate constantly while others may rotate occasionally.

The blower motor (M-100) has a fan attached to the shaft for air circulation. The blower motor also turns the blower (B-100) via two fan belts. Use caution when working in this area. The 4-way valve (V-1) is turned by a gear reduction unit (R-200) and motor (M-200). Limit switches attached to the shaft of R-200 will turn momentarily with system cycle functions.

Section 2: Air Products Safety Literature Continued.

2.3 Safety & Equipment Protection Features

The oxygen generator has several safety features included in its design.

Blower motor overload – The function of the blower motor overload is to monitor electrical amperage to blower motor (M-100) during operation. The overload will trip and shutdown blower motor if it detects high amperage due to dead-ended oxygen flow, or electrical short circuit.

Equipment enclosure – The primary function of the equipment enclosure is to protect personnel from hazardous noise levels and proper air flow while the generator is in operation. A secondary function is to protect personnel from rotating equipment and electrical connections from exposure to weather.

Outlet pressure relief valve – The oxygen storage tank (C - 500) has a 115-psig-pressure relief valve (PSV-2) installed to limit the amount of pressure for end use consumption.

2.4 Oxygen Material Safety Data Sheets

Oxygen Material Safety Data Sheet

Industrial Gas Division
Air Products and Chemicals, Inc.
Allentown, PA 18195
Tel. (215) 481-4911 · TWX 510-651-3686
Cable-AIRPROD · Telex 847416
Fax (215) 481-5900

AIR PRODUCTS

EMERGENCY PHONE: 800—523-9374 **IN PENNSYLVANIA:** 800—322-9092		
ISSUE DATE Issued: 13 April 1977	TRADE NAME AND SYNONYMS Oxygen, LOX (Liquid only), GOX (Gas only)	CHEMICAL NAME AND SYNONYMS Oxygen
REVISIONS Rev: 1 February 1989	FORMULA O_2 MW: 32.00	CHEMICAL FAMILY Oxidizing gas CAS#7782-44-7

HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE
N/A. Oxygen is not listed as a carcinogen by NTP, IARC, or OSHA.

SYMPTOMS IF INGESTED, CONTACTED WITH SKIN, OR VAPOR INHALED
Oxygen is nontoxic under most conditions of use and is necessary to support life. Liquid oxygen or cold gas will freeze tissues and can cause severe cryogenic (extremely low temperature) burns.

TOXICOLOGICAL PROPERTIES
Oxygen is nontoxic under usual conditions of use. Breathing pure oxygen at one atmosphere, however, may produce cough and chest pains within 8–24 hours. Concentrations of 60% may produce these symptoms in several days. At two atmospheres symptoms occur in 2–3 hours.
Partial pressure of oxygen in excess of two atmospheres may produce a variety of central nervous system manifestations including tingling of fingers and toes, visual and hearing disturbances, abnormal sensations, impaired coordination, confusion, muscle twitching, and seizures resembling those of epilepsy. Severe hazards may be present when confusion and impaired judgment lead to operational errors.
Infants exposed to oxygen levels in excess of 35–40% may suffer permanent visual impairment or blindness due to retrolental fibroplasia.

RECOMMENDED FIRST AID TREATMENT
If cryogenic liquid or cold boil-off gas contacts a worker's skin or eyes, frozen tissues should be flooded or soaked with tepid water (105–115F; 41–46C). DO NOT USE HOT WATER. Burns which result in blistering or deeper tissue freezing should be seen promptly by a physician.

FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	AUTO IGNITION TEMP	FLAMMABLE LIMITS	LEL	UEL
N/A	N/A	N/A	N/A	N/A

EXTINGUISHING MEDIA	ELECTRICAL CLASSIFICATION
N/A	GROUP N/A

SPECIAL FIRE FIGHTING PROCEDURES
Oxygen is nonflammable, but supports and VIGOROUSLY ACCELERATES COMBUSTION of flammables. To fight fires, shut off sources of oxygen and fight like conventional fire.

UNUSUAL FIRE AND EXPLOSION HAZARDS
Oxygen is nonflammable, but supports and VIGOROUSLY ACCELERATES COMBUSTION of flammables. Some materials which are noncombustible in air will burn in the presence of oxygen.

PHYSICAL DATA

BOILING POINT (°F.)	FREEZING POINT (°F)
@ 1 atm – 297.3F (– 183.0C)	@ 1 atm – 361.8F (– 218.8C)

VAPOR PRESSURE (psia)	SOLUBILITY IN WATER
N/A	@ 77F (25C), 1 atm 3.16% by volume

VAPOR DENSITY (lb/cu ft)	SPECIFIC GRAVITY (AIR = 1)	LIQUID DENSITY (lb/cu ft)	SPECIFIC GRAVITY (H_2O = 1)
@ 70F (21.1C), 1 atm 0.08279	@ 68F (20C), 1 atm 1.10	@ boiling point, 1 atm 71.23	@ boiling point, 1 atm 1.14

APPEARANCE AND ODOR
Gaseous oxygen is colorless and odorless. Liquid oxygen is pale blue and odorless.

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Printed in U.S.A. 310-507 (Rev. 2/89)

REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Materials which burn in air will burn violently in atmosphere richer than approx. 25% oxygen. Some materials will burn in pure oxygen which are nonflammable in air.

INCOMPATIBILITY (Materials to avoid)
All flammables, especially petroleum products, asphalt, other volatile flammables.

HAZARDOUS DECOMPOSITION PRODUCTS
None

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Prevent liquid oxygen from contacting grease, oil, asphalt or combustibles. Ventilate area to evaporate and disperse oxygen. Flush area with large quantities of water. DO NOT ENTER areas of high oxygen concentration, which can saturate clothing and increase its flammability. Avoid smoking and contact with sources of ignition after exposure to concentration of oxygen higher than the normal atmosphere.

WASTE DISPOSAL METHOD
Allow liquid oxygen to evaporate in a well ventilated outdoor area. Vent oxygen gas to outside location. Disposal site should be remote from work areas, open flames or sources of ignition and combustibles. Flushing with water will increase the vaporization rate of the liquid. Do not attempt to dispose of residual oxygen in compressed gas cylinders. Return cylinders to Air Products with residual pressure, the cylinder valve tightly closed and valve cap in place.

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)
N/A

VENTILATION Prevent accumulation with natural or forced air.	LOCAL EXHAUST As necessary	SPECIAL None normally required
	MECHANICAL (General) As necessary	OTHER Vents should be situated to avoid higher than normal concentration of oxygen in work areas.

PROTECTIVE GLOVES
(Liquid) Loose-fitting gloves of impermeable material, such as leather. (Gas) Leather work gloves are recommended when handling compressed gas cylinders.

EYE PROTECTION
(Liquid) Chemical goggles or safety glasses. (Gas) Safety glasses are recommended when handling high-pressure cylinders.

OTHER PROTECTIVE EQUIPMENT
N/A

SPECIAL PRECAUTIONS*

SPECIAL LABELING INFORMATION
Oxygen shipment must be in accordance with Department of Transportation (DOT) regulations using DOT "OXIDIZER" label. Consult DOT regulations for details on the shipment of hazardous materials.

SPECIAL HANDLING RECOMMENDATIONS
Prevent contact of liquid oxygen with exposed skin. Prevent entrapment of liquid in closed systems. Use only in well ventilated areas. Cleanliness and compatibility of materials in contact with oxygen are essential especially internal parts of piping systems. Some elastomers (o-rings, valve seats, etc.) are not compatible with oxygen. Open oxygen valves slowly. Compressed gas cylinders contain oxygen at extremely high pressure and should be handled with care. Use a pressure-reducing regulator when connecting to lower pressure piping systems. Secure cylinders when in use. Never use direct flame to heat a compressed gas cylinder. Use a check valve to prevent back flow into storage containers. Avoid dragging, rolling, or sliding cylinders, even for a short distance. Use a suitable hand truck. For additional handling recommendations on compressed gas cylinders, consult Compressed Gas Association Pamphlet P-1.

SPECIAL STORAGE RECOMMENDATIONS
Store liquid containers and cylinders in well ventilated areas. Do not store cylinders of oxygen within 20 ft. of flammable or combustible materials, especially oil or grease. Keep cylinders away from source of heat. Storage should not be in heavy traffic areas to prevent accidental knocking over or damage from passing or falling objects. Valve caps should remain on cylinders not connected for use. Never lubricate valves or cylinder caps. Segregate full and empty cylinders. Storage areas should be free of combustible material. Avoid exposure to areas where salt or other corrosive chemicals are present. See Compressed Gas Association Pamphlet P-1 for additional storage recommendations.

SPECIAL PACKAGING RECOMMENDATIONS
Gaseous oxygen containers meet DOT specifications or American Society of Mechanical Engineers (ASME) codes. Liquid oxygen is stored in vacuum-insulated containers meeting DOT specifications or ASME codes.

OTHER RECOMMENDATIONS OR PRECAUTIONS
Oxygen is not to be used as a substitute for compressed air. Applications such as cleaning, dusting, powering pneumatic tools, etc., are not safe due to lubricating oils and other materials present. Use only with equipment specifically designed and cleaned for oxygen service. Consult Compressed Gas Association Pamphlet G-4.1, "Cleaning Equipment for Oxygen Service," for details. Liquid oxygen is cryogenic liquid. Materials of construction must be selected for compatibility with extremely low temperatures. Avoid use of carbon steel and other materials which become brittle at low temperatures. Compressed gas cylinders should not be refilled except by qualified producers of compressed gases. Shipment of a compressed gas cylinder filled without the permission of the owner is a violation of Federal Law. If oxygen concentrations exceeding 25% are suspected or can occur, use oxygen monitoring equipment to test for oxygen-enriched atmospheres.

*Various Government agencies (i.e., Department of Transportation, Occupational Safety and Health Administration, Food and Drug Administration and others) may have specific regulations concerning the transportation handling, storage or use of this product which will not be reflected in this data sheet. The customer should review these regulations to ensure that s/he is in full compliance.

Section 3: Rix Safety Literature

SAFETY SUMMARY

The following is a general safety precaution that is not related to any specific procedure and therefore does not appear elsewhere in this publication. This is a recommended precaution that personnel **must** understand and apply during many phases of operation and maintenance:

KEEP AWAY FROM LIVE CIRCUITS. Operating personnel **must** at all times observe all safety regulations. Do not replace components or make adjustments inside the electrical enclosures with the voltage supply turned on.

The following WARNINGS and CAUTIONS appear in this manual and are repeated here for emphasis.

CAUTION
Do not operate if safety guards are damaged or removed.

CAUTION
Do not attempt any repair without first cutting off power at the main breaker switch and consulting cleanliness requirements. In automatic mode, the compressor may start at any time.

CAUTION
Check relief valves for correct operation at regular periods. Do not reset for any pressure other than that stamped on the valve body.

CAUTION
Do not bypass the pressure switches. This would eliminate safety features and could result in damage to the compressor.

WARNING
Do not touch discharge gas lines from the cylinders. These are hot and can cause serious burns.

Section 3: Rix Safety Literature continued.

WARNING
To prevent FIRE, SERIOUS INJURY, and/or DEATH, it is the User's responsibility to ensure all parts used in the compression assembly, gas plumbing of this RIX Oxygen compressor and any other existing portions of the gas stream that may be exposed during the installation of new or replacement parts are cleaned for Oxygen Service prior to installation. Any work to be done on the compressor where the gas stream may be exposed must be done in accordance with safe Oxygen Equipment handling procedures. No attempt should be made to work on the machine without full knowledge of Oxygen equipment handling and the potential hazards of contamination. Factory Oxygen cleaned parts are denoted by an "X" prefix at the beginning of the part number. It is the User' s responsibility to maintain the cleanliness of factory cleaned parts and any other existing portions of the gas stream that may be exposed during the initial installation, start up, or during installation of replacement parts. RIX Industries commends the customer establish a procedure for working with oxygen machinery.
Refer to Compressed Gas Association, Inc. publication number CGA G-4.1, Cleaning Equipment for Oxygen Service.

WARNING
Before performing any of the scheduled maintenance tasks in Chapter 4 of the Rix manual , the compressor should be shut off and tagged **Out of Servic**e. This is to prevent an inadvertent start which could cause injury to personnel or damage to the equipment. After completing the maintenance action, the compressor should be restored to full operation and the tags removed.

WARNING
Discharge pipes, fittings, and port areas can cause painful burns if touched. Always exercise caution around the compressor when it is running or has recently been run.

WARNING
The compressor may start at any time when in automatic mode. Before attempting any repairs or adjustments: de-energize the machine by pushing the **STOP** button, disconnect power to the system (to avoid shock hazard), vent pressure by opening hand valves down stream and give the discharge piping time to cool down. Discharge lines are hot and can cause burns.

WARNING
Hot discharge lines can produce painful burns. Be careful to avoid making contact with hot pipes while performing tests and repairs.

Section 3: Rix Safety Literature continued.

GENERAL INFORMATION
SAFETY PRECAUTIONS
The following safety precautions apply to the **RIX 2PS2B-.85 Compresso**r. Proper attention to safety should be maintained whenever operating or servicing this equipment. A complete listing of safety precautions is given in the Safety Summary on Page iv of Rix Manual
Do not operate if safety guards are damaged or removed.

Do not touch discharge gas lines from the cylinders. These are hot and can cause serious burns.

Do not attempt any repair without first cutting off power at the main breaker switch and consulting cleanliness requirements.

Check relief valves for correct operation at regular periods. Do not reset for any pressure other than that stamped on valve body.

Do not bypass pressure switches. This would eliminate safety features and could result in damage to the compressor.

OXYGEN CLEANLINESS

The **RIX 2PS2B-.85 Oxygen Compressor** is specially designed and built to safely process pure Oxygen Gas without oxidation or combustion. All compressor parts have been thoroughly cleaned and inspected. Assembly is done in a special cleaning facility and clean room environment with extreme care taken to prevent any combustibles from entering the system.

WARNING
To prevent **FIRE, SERIOUS INJURY, and/or DEATH**, it is the User's responsibility to ensure all parts used in the compression assembly, gas plumbing of this RIX Oxygen compressor and any other existing portions of the gas stream that may be exposed during the installation of new or replacement parts are cleaned for Oxygen Service prior to installation.
Any work to be done on the compressor where the gas stream may be exposed must be done in accordance with **safe Oxygen Equipment handling procedures.**
No attempt should be made to work on the machine without full knowledge of Oxygen equipment handling and the potential hazards of contamination.
Factory Oxygen cleaned parts are denoted by an "X" prefix at the beginning of the part number. It is the User's responsibility to maintain the cleanliness of factory cleaned parts and any other existing portions of the gas stream that may be exposed during the initial installation, start up, orduring installation of replacement parts.

Section 4: MD Roots Blower Safety Literature.

SAFETY PRECAUTIONS

For equipment covered specifically or indirectly in this instruction book, it is important that all personnel observe safety precautions to minimize the chances of injury. Among many considerations, the following should particularly be noted:

- Blower casing and associated piping or accessories may become hot enough to cause major skin burns on contact.

- Internal and external rotating parts of the blower and driving equipment can produce serious physical injuries. Do not reach into any opening in the blower while it is operating, or while subject to accidental starting. Cover external moving parts with adequate guards.

- Disconnect power before doing any work, and avoid bypassing or rendering inoperative any safety or protective devices.

- If blower is operated with piping disconnected, place a strong, coarse screen over the inlet and avoid standing in discharge air stream.

- Avoid extended exposure in close proximity to machinery with high intensity noise levels.

- Use proper care and good procedures in handling, lifting, installing, operating, and maintaining the equipment.

- Other potential hazards to safety may also be associated with operation of this equipment. All personnel working in or passing through the area should be warned by signs and trained to exercise adequate general safety precautions.

- Hearing protection may be required depending on silencing capabilities.

CAUTION!

Most COMPETITOR PLUS™ blowers are shipped from the factory in a left hand drive, vertical flow configuration. If drive shaft location is changed, the oil level plug and breather must be relocated to proper positions, as shown to the right. Failure to change plug location will result in blower failure and void the product warranty.